

1003.920



## PATENT SPECIFICATION

DRAWINGS ATTACHED

1003.920

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## COMPLETE SPECIFICATION

## Improvements in the Mounting of Reels on Winding Machines

I, EDWARD MORRIS a British Subject, trading as Walmer Engineering Company, of 24, Robson Street, Oldham, County of Lancaster, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to improvements in the mounting of reels on winding machines particularly for reels of wire.

Reels for wire have been mounted on a cylindrical barrel carried on a spindle or pillar and centred thereon on balloon springs engaging the bore in the reel but due to the weight of wire on the reel the springs are liable to collapse.

The object of the invention is to provide a mounting for the reel which will maintain the reel central during winding or unwinding, whilst allowing reels of differing diameters and lengths to be used.

According to the invention a cylindrical reel-mounting barrel is formed with a truncated conical portion at one end adapted to engage one of the peripheral edges of the bore of the reel and spring loaded or hydraulically controlled toggle links at the opposite end adapted to engage the other peripheral edge of the bore in the reel to accommodate reels of differing lengths or diameter.

The invention will be described with reference to the accompanying drawings:—

Fig. 1 is a side elevation partly in section of the reel-mounting barrel for a wire winding machine.

Fig. 2 is an end elevation in the direction of arrow X in Fig. 1.

Fig. 3 is a similar view partly broken away of the opposite end in the direction of the arrow Y in Fig. 1.

Fig. 4 is a vertical section of a modification for operating the mechanism hydraulically.

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A mounting barrel for reels of wire for unwinding is formed with a conical barrel 45 A formed with cylindrical ribs having an outwardly tapering truncated conical portion *a* at one end to enable the barrel to accommodate reels 1 of differing diameters length carried in bearings *a*<sup>2</sup> *a*<sup>3</sup> on the spindle *a*<sup>1</sup>. 50 The spindle *a*<sup>1</sup> is provided with an extension *a*<sup>4</sup> at the nose end.

The ribs on the barrel A remote from the conical portion *a* is recessed to accommodate one end of toggle links B, B<sup>1</sup> pivoted together 55 and connected at the other end of the link B<sup>1</sup> to an outrigger *b* mounted on the extension *a*<sup>4</sup>. Preferably three sets of toggle links B B<sup>1</sup> are provided at 120° around the barrel A. The outrigger *b* is connected to the barrel 60 by tension springs *b*<sup>1</sup>, a stop *a*<sup>5</sup> being provided on the spindle extension *a*<sup>4</sup> to limit the inward movement of the outrigger *b* according to the internal diameter of the reel 1. 65

After adjusting the stop *a*<sup>5</sup> the reel 1 is pushed over the joints of the toggle links B B<sup>1</sup> which move outwards to allow the reel to pass onto the barrel A.

The forward end of the reel 1 engages the conical portion *a* and the opposite end of the reel engages the links B pivoted to the barrel A thereby centrally mounting the reel thereon. 70

The position of the outrigger *b* for differing diameter lengths of reels is varied by rotating a sleeve *a*<sup>6</sup> carrying the stop *a*<sup>5</sup> inwards or outwards to regulate the opening and closing of the toggle links B B<sup>1</sup>. 75

A brake flange *a*<sup>7</sup> is provided on the conical end of the barrel A to receive a brake pad *a*<sup>8</sup> operated by a rod *a*<sup>9</sup> mounted to slide in a bracket *c* and connected at one end to a lever *c*<sup>1</sup> pivoted on an arm *c*<sup>2</sup>. The lever *c*<sup>1</sup> carries a pulley *c*<sup>3</sup> over which the wire passes during 80 unwinding, slack in the wire allowing a spring 85

$c^4$  to apply the brake and tension on the wire overcoming the spring to release the brake pad  $a^8$ . The pulley  $c^3$  may be counter balanced by a weight  $C^1$ .

- 5 In order to apply a predetermined tension to the wire a bracket  $c^5$  is mounted on the upper end of the arm  $c^2$  through which is screwed a rod  $c^7$  carrying a spring loaded brake pad  $c^6$  engaging the flange  $a^7$ . The pressure of the pad  $c^6$  on the flange is adjusted by rotating the rod  $c^7$ .

- 10 The links B, B<sup>1</sup> may be operated hydraulically as shown in Fig. 4. The links B<sup>1</sup> are mounted to slide in cylinders D communicating with an annular space  $d^1$  in the outrigger  $b$ . A plunger D<sup>1</sup> is mounted in a cylinder  $d^1$  and communicating through a non-return valve  $d^2$  with the annular space  $d$ . The plunger D<sup>1</sup> is operated to expel air through bleed ports  $d^3$  which are then closed.

- 20 Hydraulic fluid is pumped from a reservoir  $d^4$  into the cylinders D by the plunger D<sup>1</sup> and maintains the links in contact with the reel 1. The links B, B<sup>1</sup> are released by a screwed spindle  $d^5$  which allows the fluid to return to the reservoir  $d^4$ .

- 25 The apparatus may be employed for winding onto the reel by removing the brake mechanism from the flange  $a^7$  and driving the barrel and reel by a belt passing over the flange.

#### WHAT I CLAIM IS:—

1. A cylindrical reel mounting barrel adapted and formed with a truncated conical portion at one end adapted to engage one of the peripheral edges of the bore in the reel and with spring loaded or hydraulically controlled toggle links at the opposite end adapted to engage the other peripheral edge of the bore in the reel to accommodate reels of differing lengths or diameter.

2. A cylindrical barrel as in Claim 1 in which the toggle links are maintained in contact with the reel by hydraulic mechanisms.

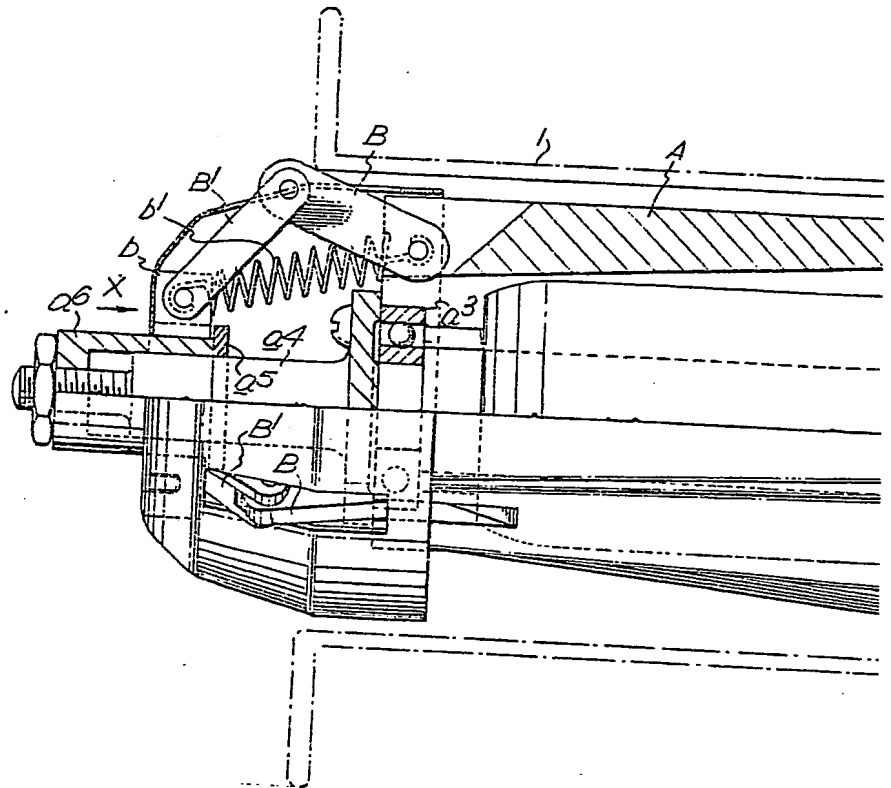
3. A cylindrical barrel as in either of claims 1 or 2 in which the barrel is mounted in bearings to rotate about a fixed spindle.

4. A cylindrical barrel as in any of claims 1—3 in which the tension on wire being unwound actuates a brake to control the rotation of the barrel.

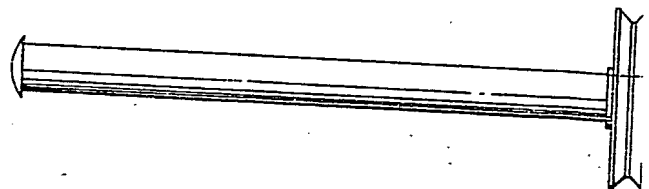
5. A cylindrical barrel as in claim 4 in which a second brake is provided to apply a predetermined retardation to a flange on the barrel.

6. A cylindrical reel-mounting barrel for carrying a reel during winding or unwinding substantially as described with reference to the accompanying drawings.

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*Fig. 1.*



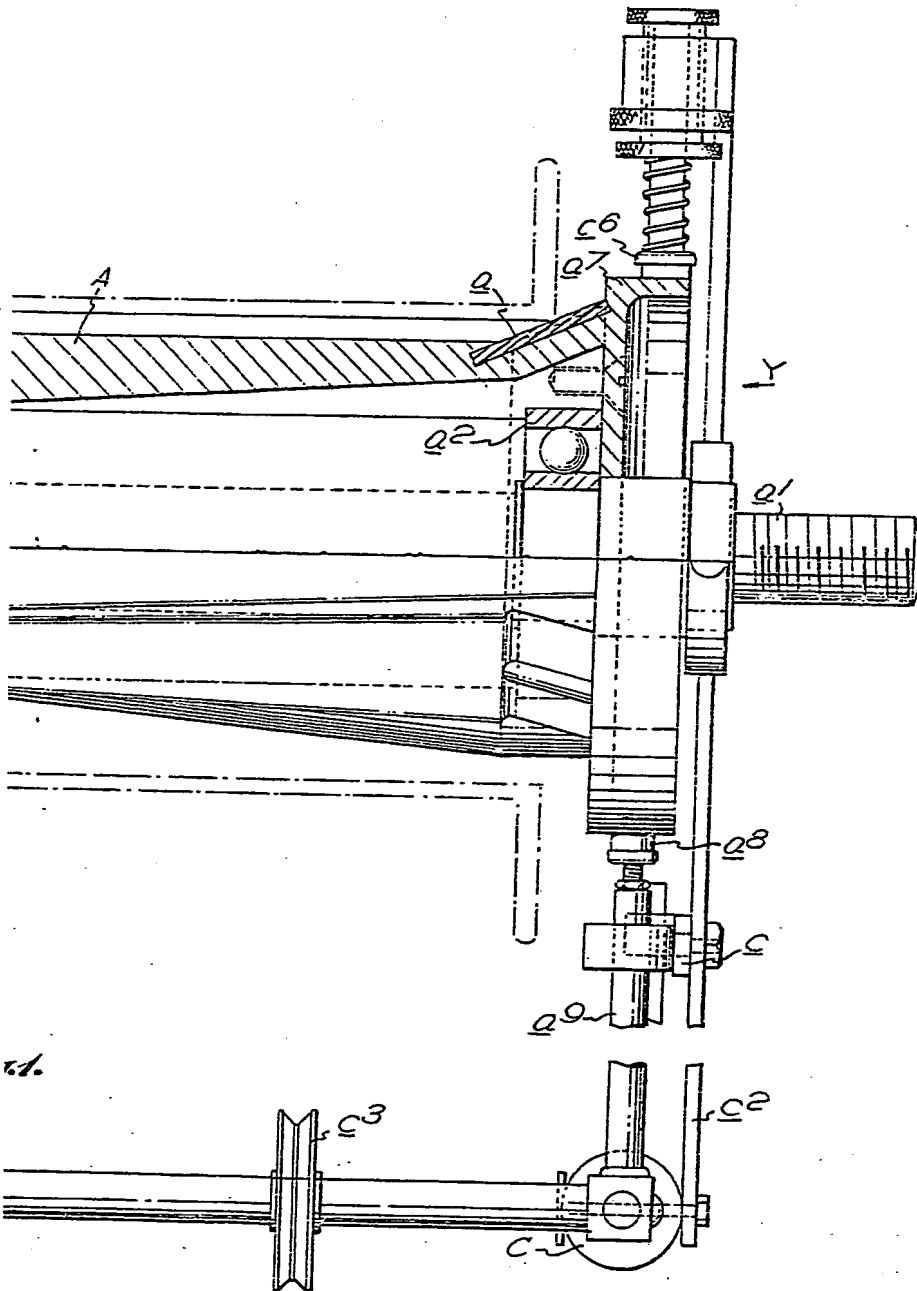
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Sheet 1



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 Sheet 1

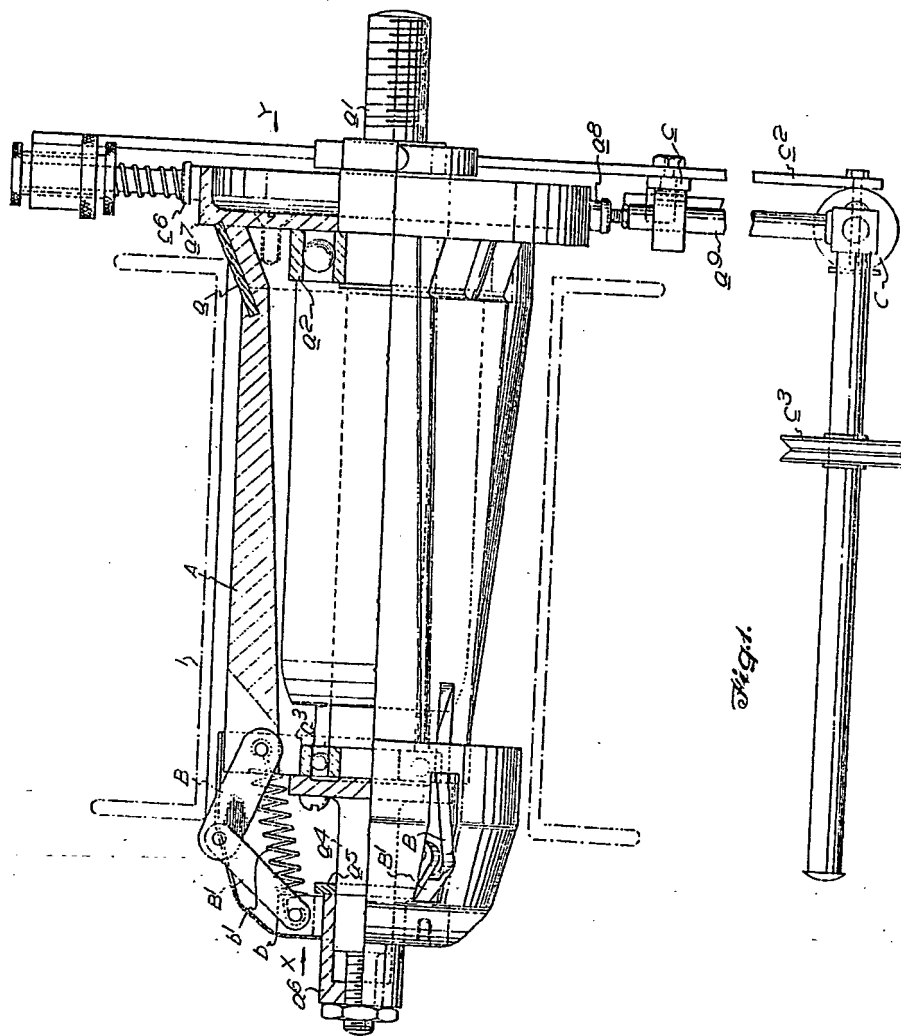
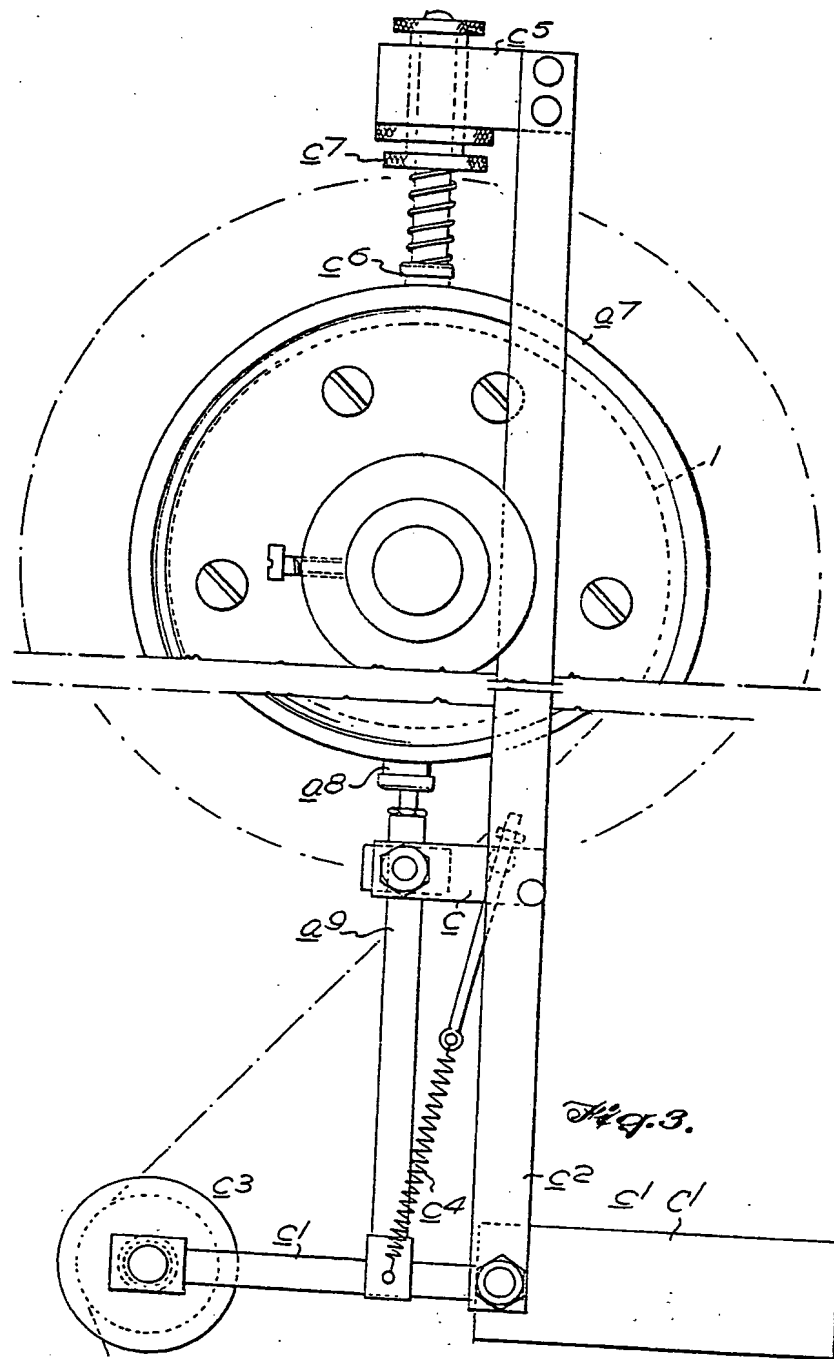


Fig. 1.



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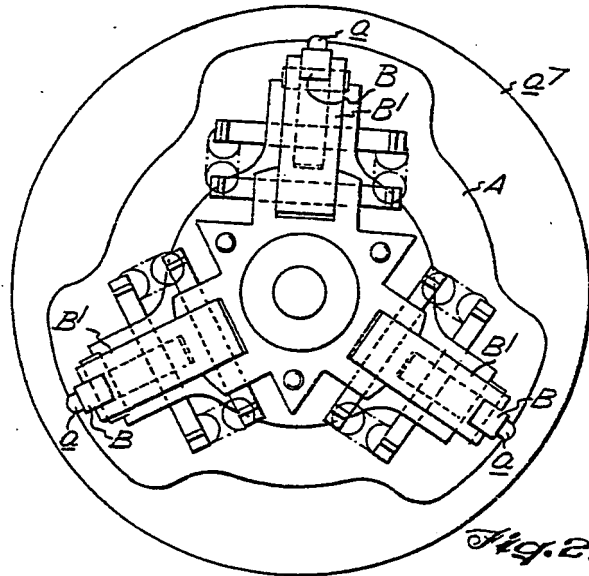


Fig. 2.

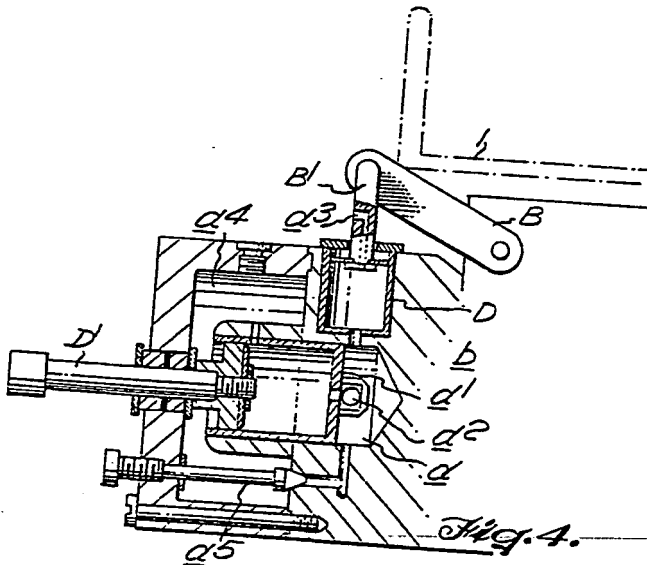
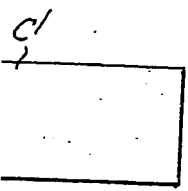


Fig. 4.

3.



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